04063-US

FIG.1

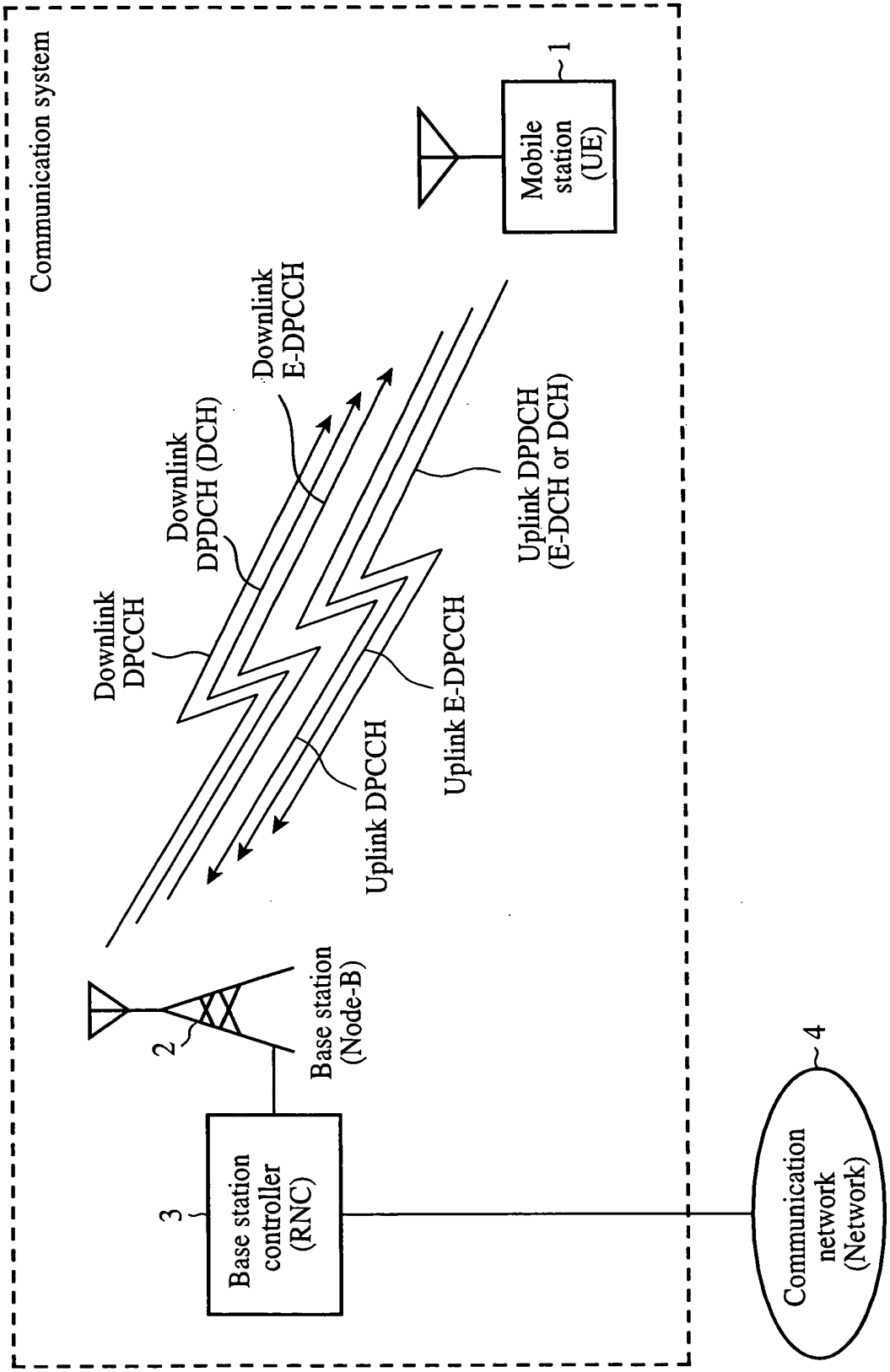


FIG.2

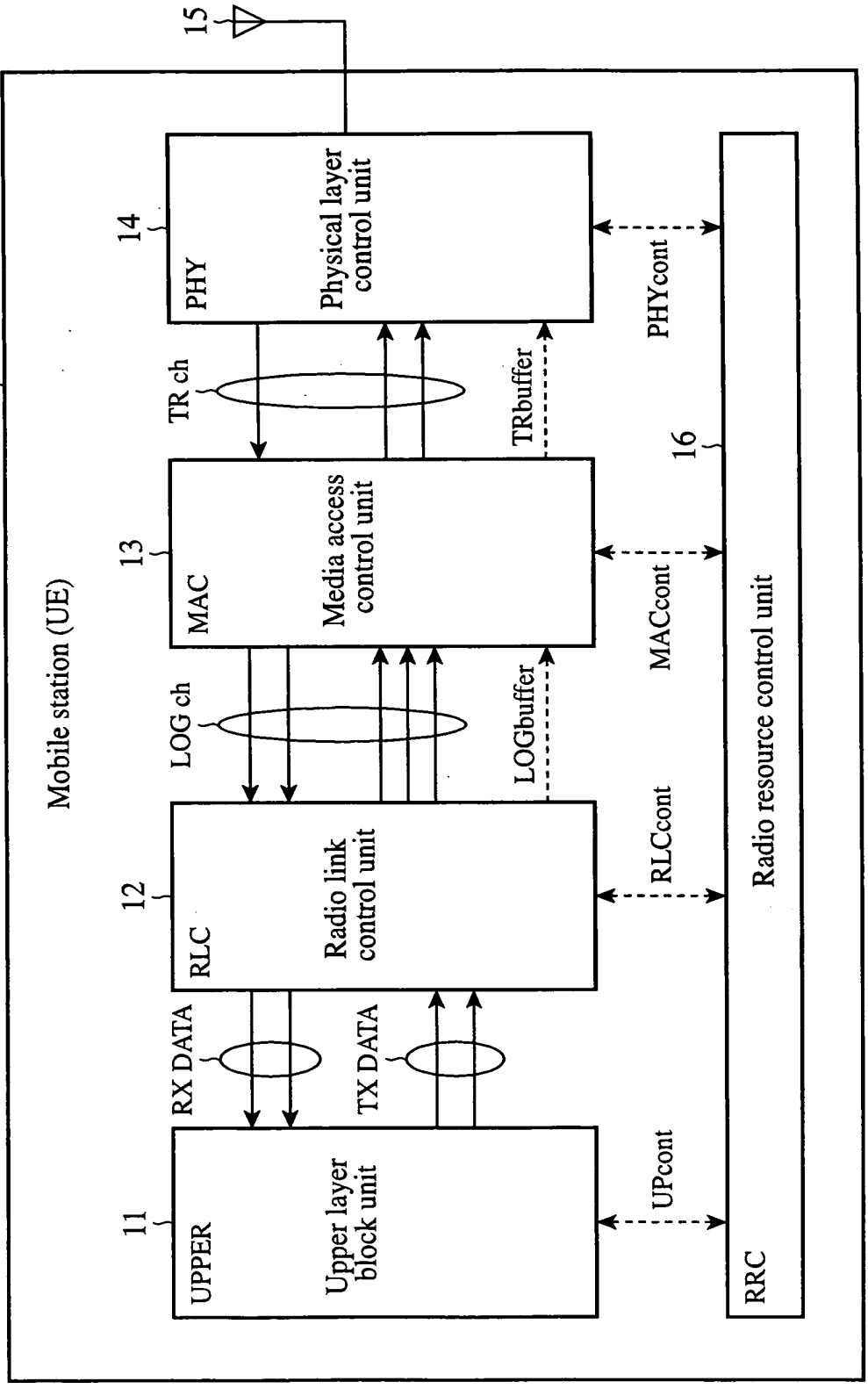

1
Mobile station (UE)
15
14
PHY
Physical layer control unit
PHYcont
TR ch
TRbuffer
16
13
MAC
Media access control unit
MACcont
LOG ch
LOGbuffer
12
RLC
Radio link control unit
RLCcont
RX DATA
TX DATA
11
UPPER
Upper layer block unit
UPcont
RRC
Radio resource control unit

FIG.3

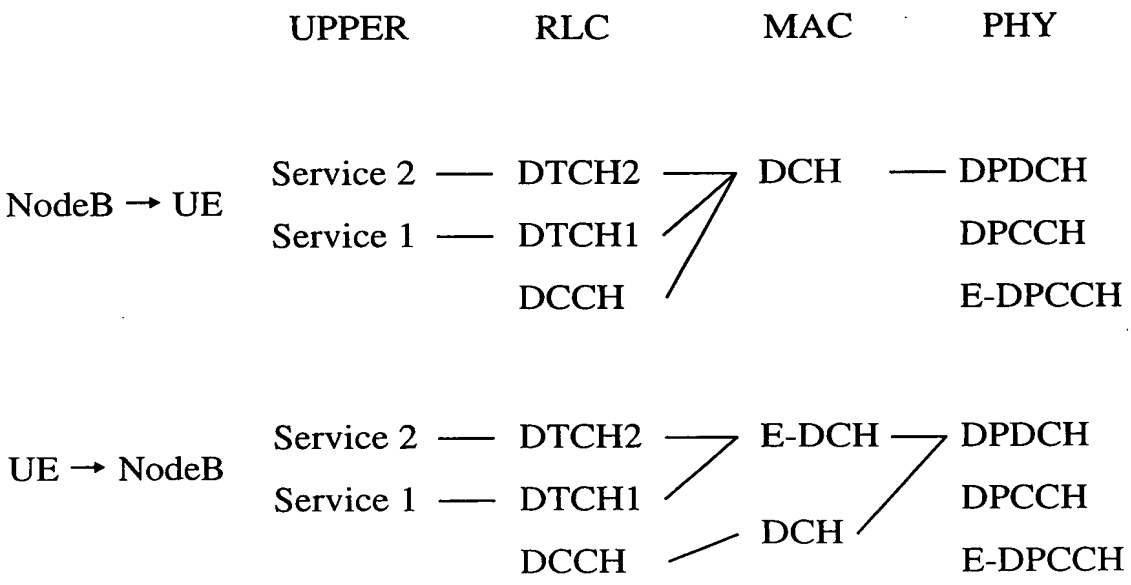

UPPER
RLC
MAC
PHY
NodeB → UE
Service 2
Service 1
DTCH2
DTCH1
DCCH
DCH
DPDCH
DPCCH
E-DPCCH
UE → NodeB
Service 2
Service 1
DTCH2
DTCH1
DCCH
E-DCH
DCH
DPDCH
DPCCH
E-DPCCH

FIG.4

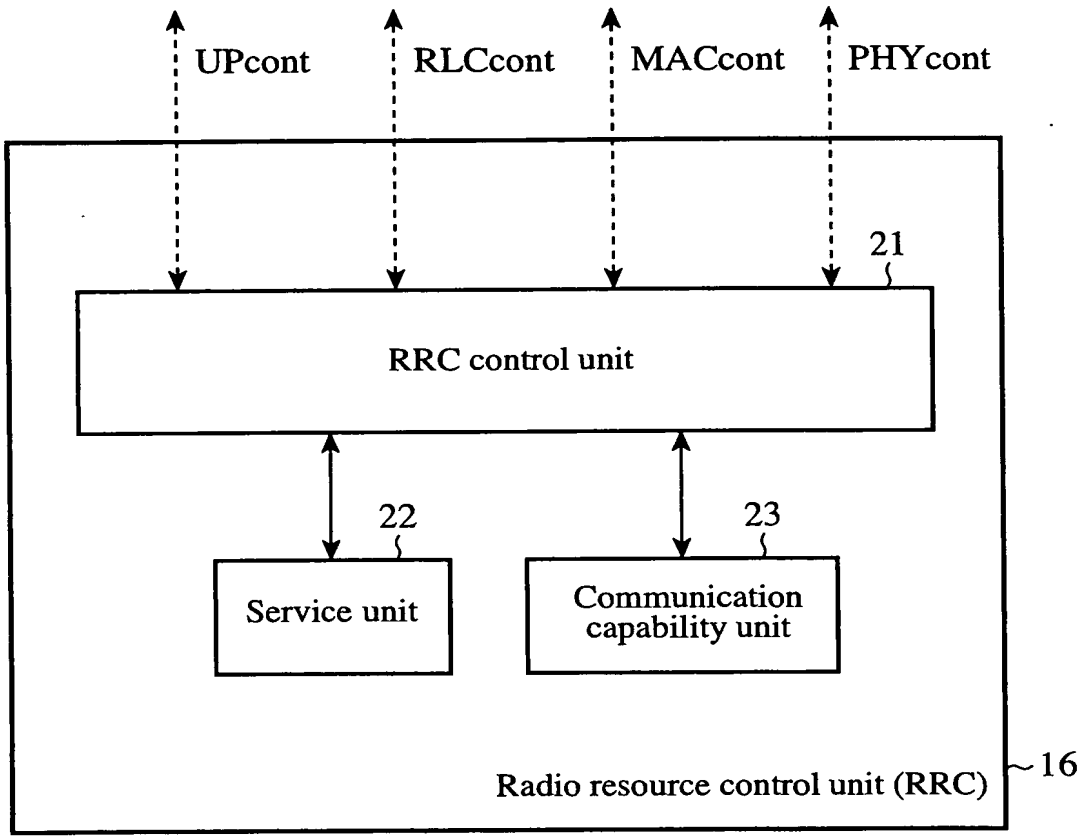
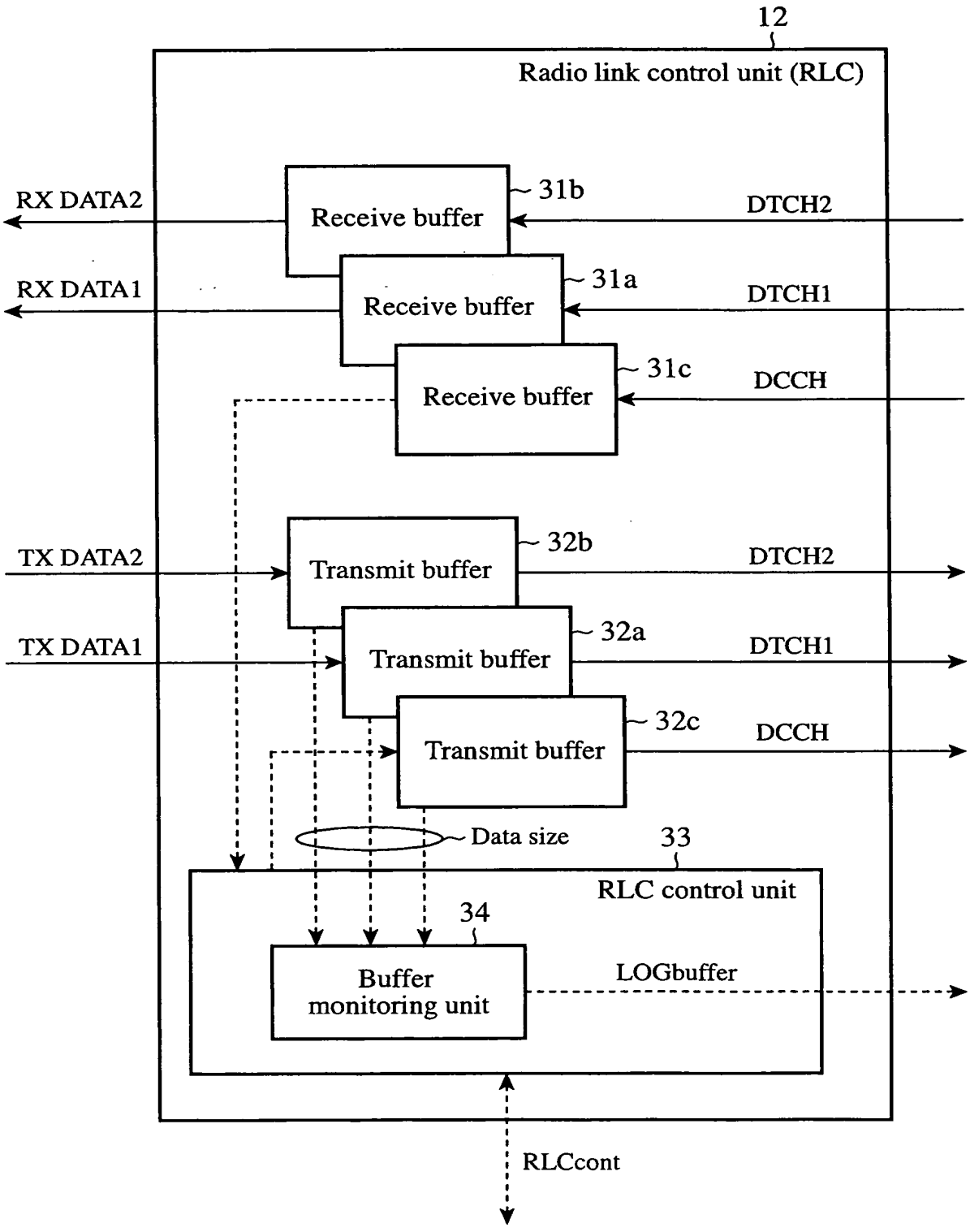

UPcont
RLCcont
MACcont
PHYcont
21
RRC control unit
22
23
Service unit
Communication capability unit
Radio resource control unit (RRC)
16

FIG.5


12
Radio link control unit (RLC)
RX DATA2
Receive buffer
31b
DTCH2
RX DATA1
Receive buffer
31a
DTCH1
Receive buffer
31c
DCCH
TX DATA2
Transmit buffer
32b
DTCH2
TX DATA1
Transmit buffer
32a
DTCH1
Transmit buffer
32c
DCCH
Data size
33
RLC control unit
34
Buffer monitoring unit
LOGbuffer
RLCcont

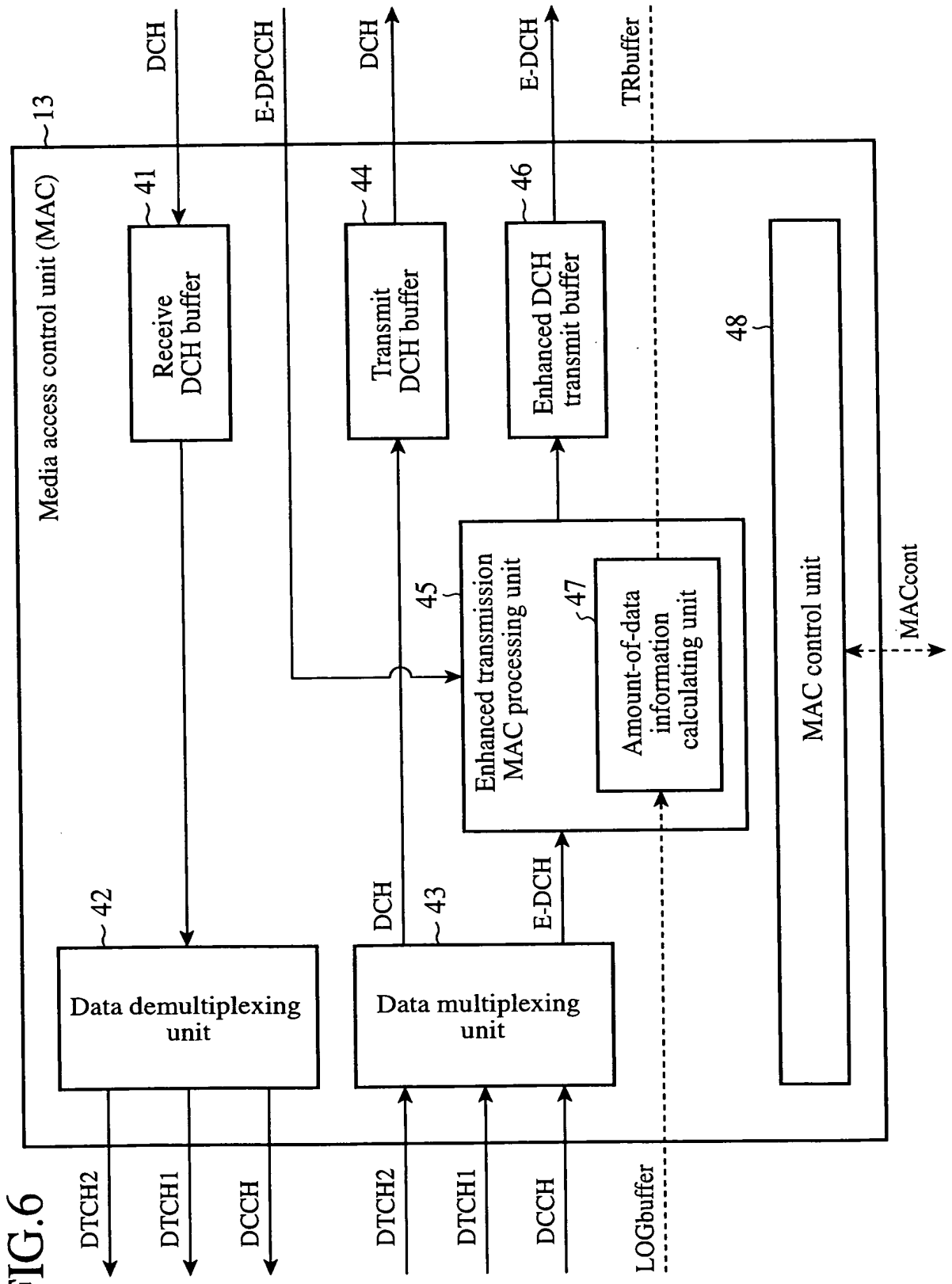

Media access control unit (MAC)
13
DCH
E-DPCCH
DCH
E-DCH
TRbuffer
41
Receive DCH buffer
44
Transmit DCH buffer
46
Enhanced DCH transmit buffer
48
MAC control unit
MACcont
45
Enhanced transmission MAC processing unit
47
Amount-of-data information calculating unit
42
Data demultiplexing unit
DCH
43
Data multiplexing unit
E-DCH
DTCH2
DTCH1
DCCH
DTCH2
DTCH1
DCCH
LOGbuffer

FIG.6

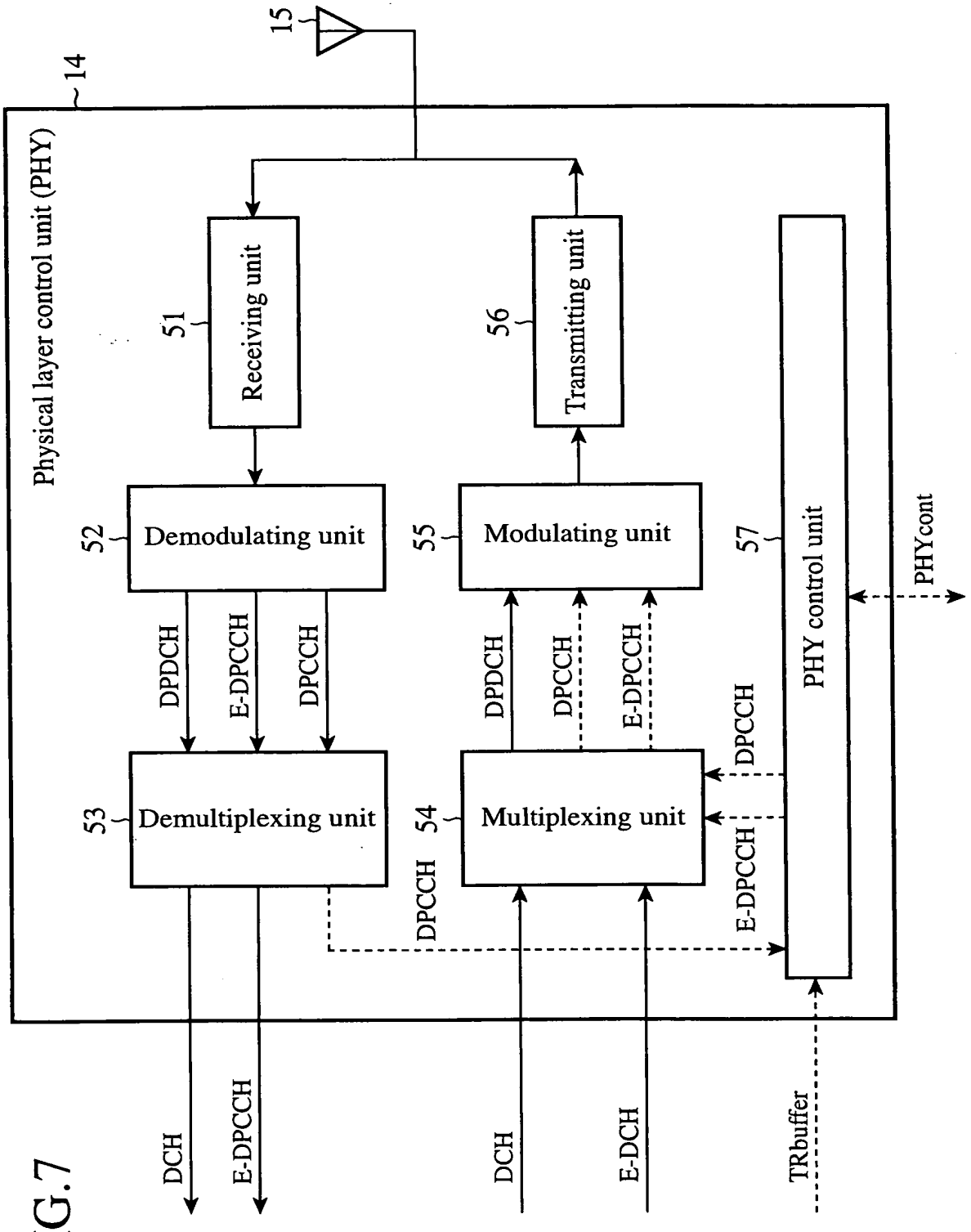

15
14
Physical layer control unit (PHY)
51
Receiving unit
56
Transmitting unit
52
Demodulating unit
55
Modulating unit
57
PHY control unit
PHYcont
DPDCH
E-DPCCH
DPCCH
DPDCH
DPCCH
E-DPCCH
DPCCH
53
Demultiplexing unit
54
Multiplexing unit
DPCCH
E-DPCCH
DCH
E-DPCCH
DCH
E-DCH
TRbuffer

FIG.7

FIG.8

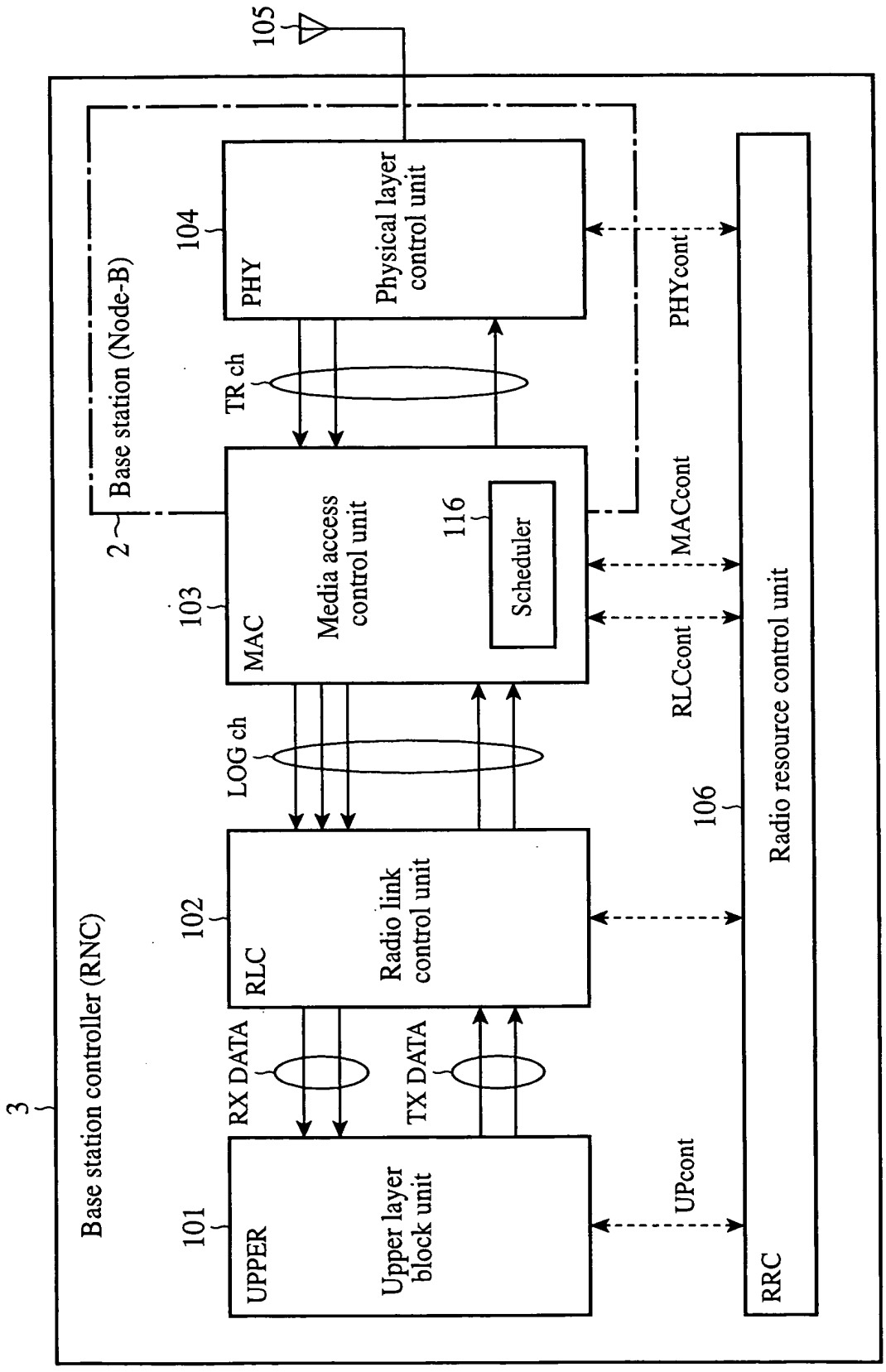
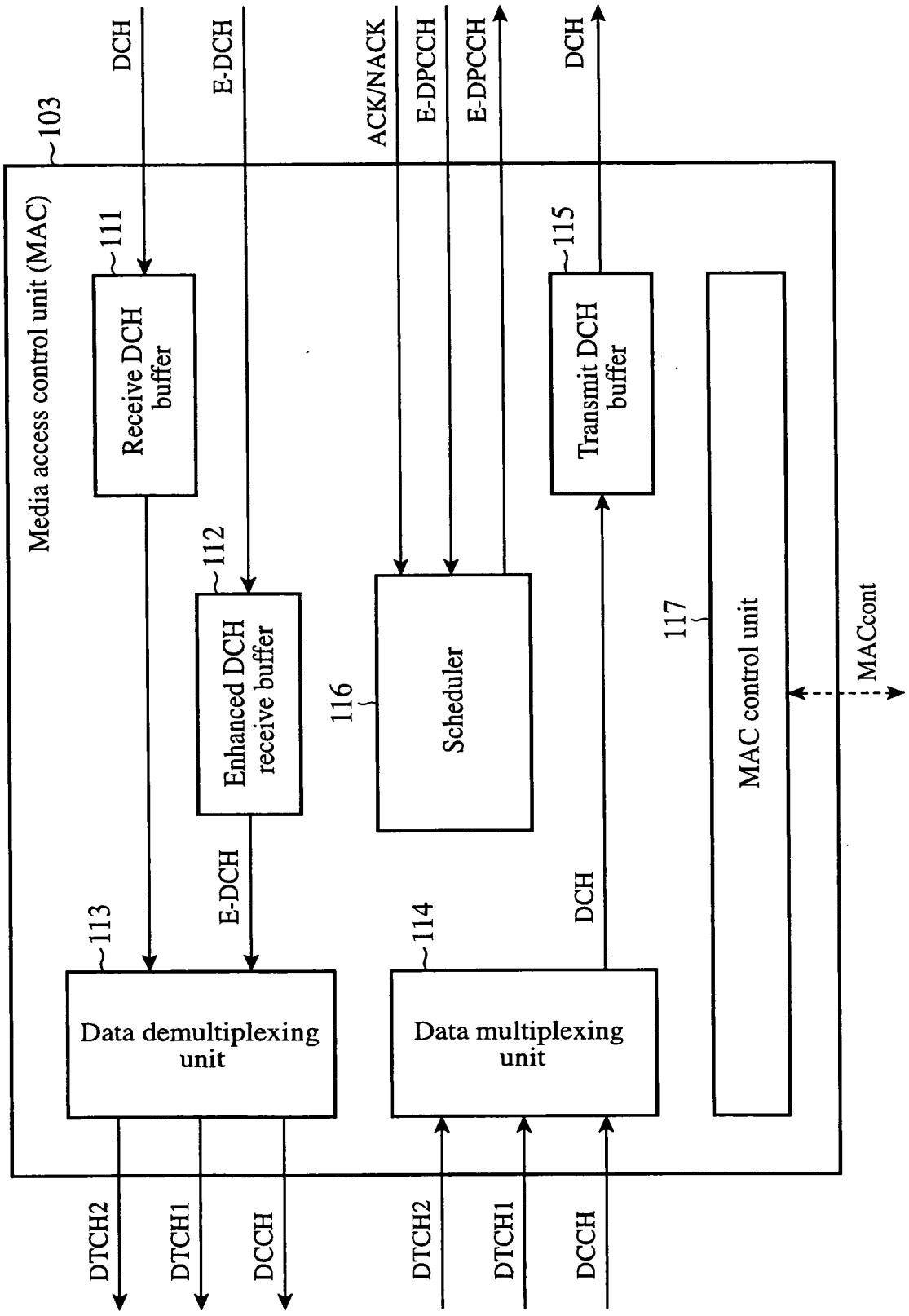

105
Base station controller (RNC)
3
Base station (Node-B)
2
104
PHY
Physical layer control unit
TR ch
PHYcont
103
MAC
Media access control unit
116
Scheduler
MACcont
RLCcont
LOG ch
106
Radio resource control unit
102
RLC
Radio link control unit
RX DATA
TX DATA
101
UPPER
Upper layer block unit
UPcont
RRC

FIG.9


103
Media access control unit (MAC)
DCH
E-DCH
ACK/NACK
E-DPCCH
E-DPCCH
DCH
111
Receive DCH buffer
112
Enhanced DCH receive buffer
116
Scheduler
115
Transmit DCH buffer
117
MAC control unit
MACcont
E-DCH
DCH
113
Data demultiplexing unit
114
Data multiplexing unit
DTCH2
DTCH1
DCCH
DTCH2
DTCH1
DCCH

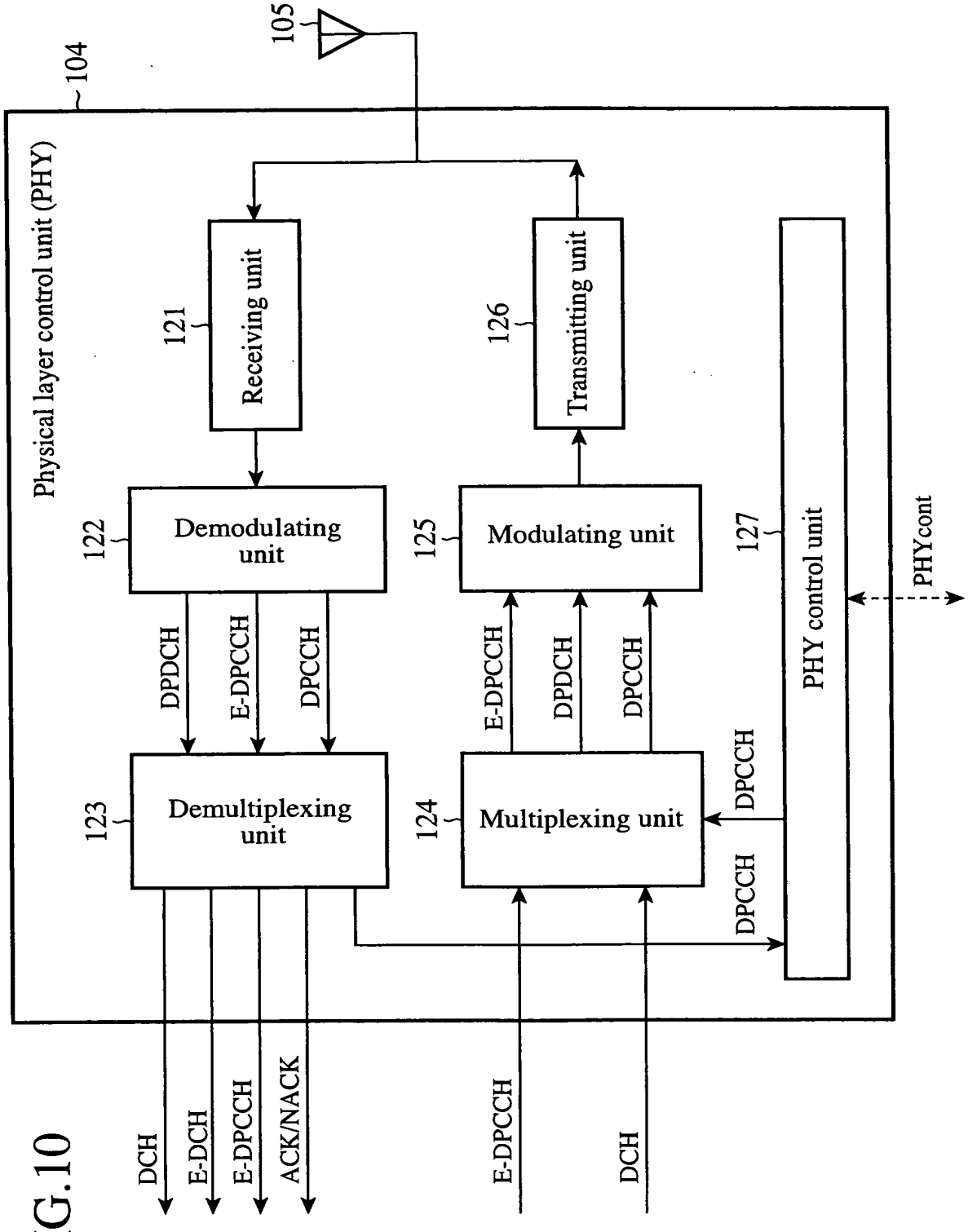

105
104
Physical layer control unit (PHY)
121
Receiving unit
126
Transmitting unit
122
Demodulating unit
125
Modulating unit
127
PHY control unit
PHYcont
DPDCH
E-DPCCH
DPCCH
E-DPCCH
DPDCH
DPCCH
123
Demultiplexing unit
124
Multiplexing unit
DPCCH
DPCCH
DCH
E-DCH
E-DPCCH
ACK/NACK
E-DPCCH
DCH

FIG.10

FIG.11

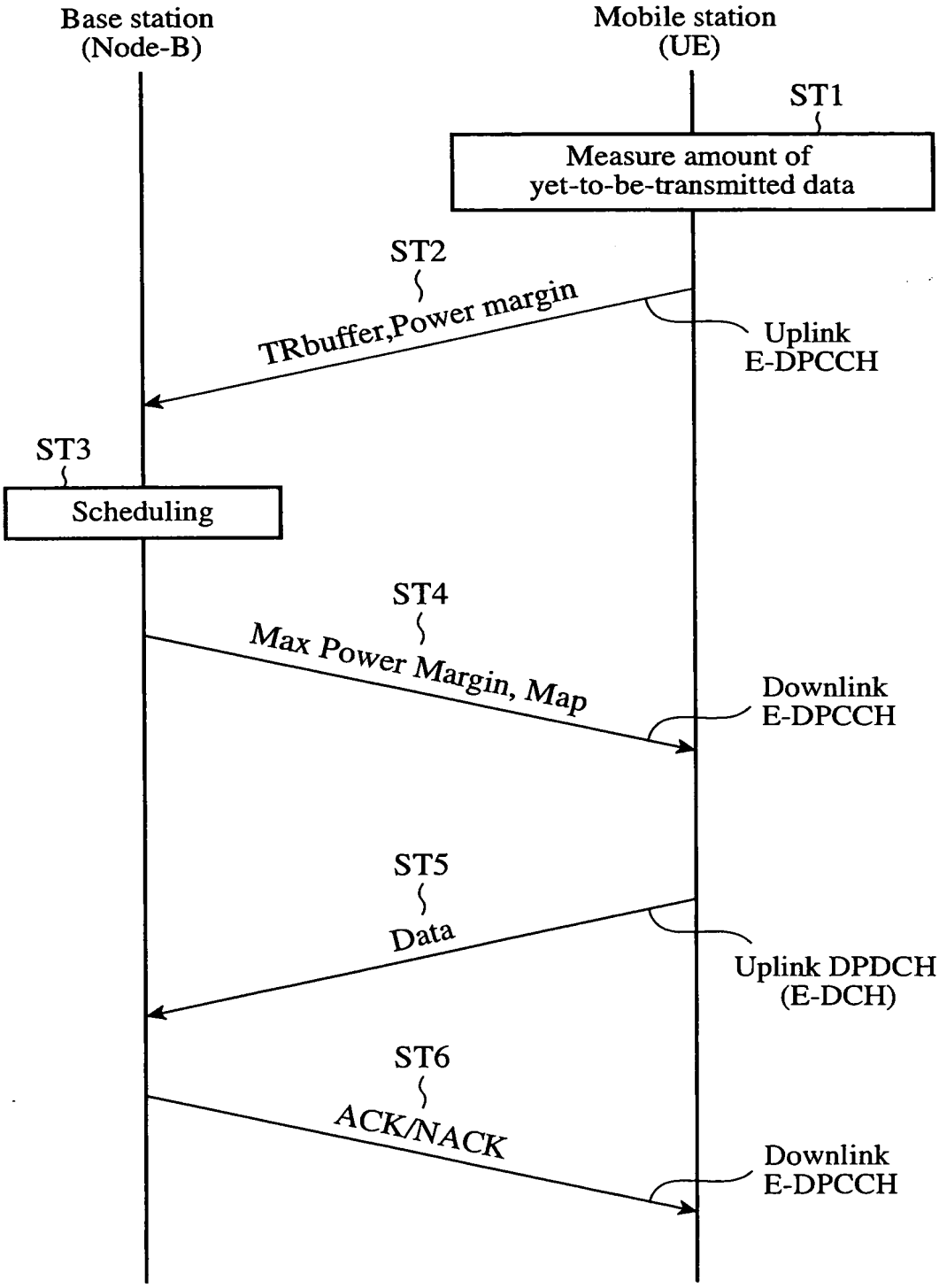

Base station
(Node-B)
Mobile station
(UE)
ST1
Measure amount of
yet-to-be-transmitted data
ST2
TRbuffer,Power margin
Uplink
E-DPCCH
ST3
Scheduling
ST4
Max Power Margin, Map
Downlink
E-DPCCH
ST5
Data
Uplink DPDCH
(E-DCH)
ST6
ACK/NACK
Downlink
E-DPCCH

FIG.12A

Index	Service 1	Service 2
1	Occupation ratio 100%	100%
2	100%	80%
3	80%	100%
4	80%	80%
⋮	⋮	⋮
10	0%	0%

FIG.12B

Index	DTCH1	DTCH2
1	Occupation ratio 100%	100%
2	100%	80%
3	80%	100%
4	80%	80%
⋮	⋮	⋮
10	0%	0%

FIG.13

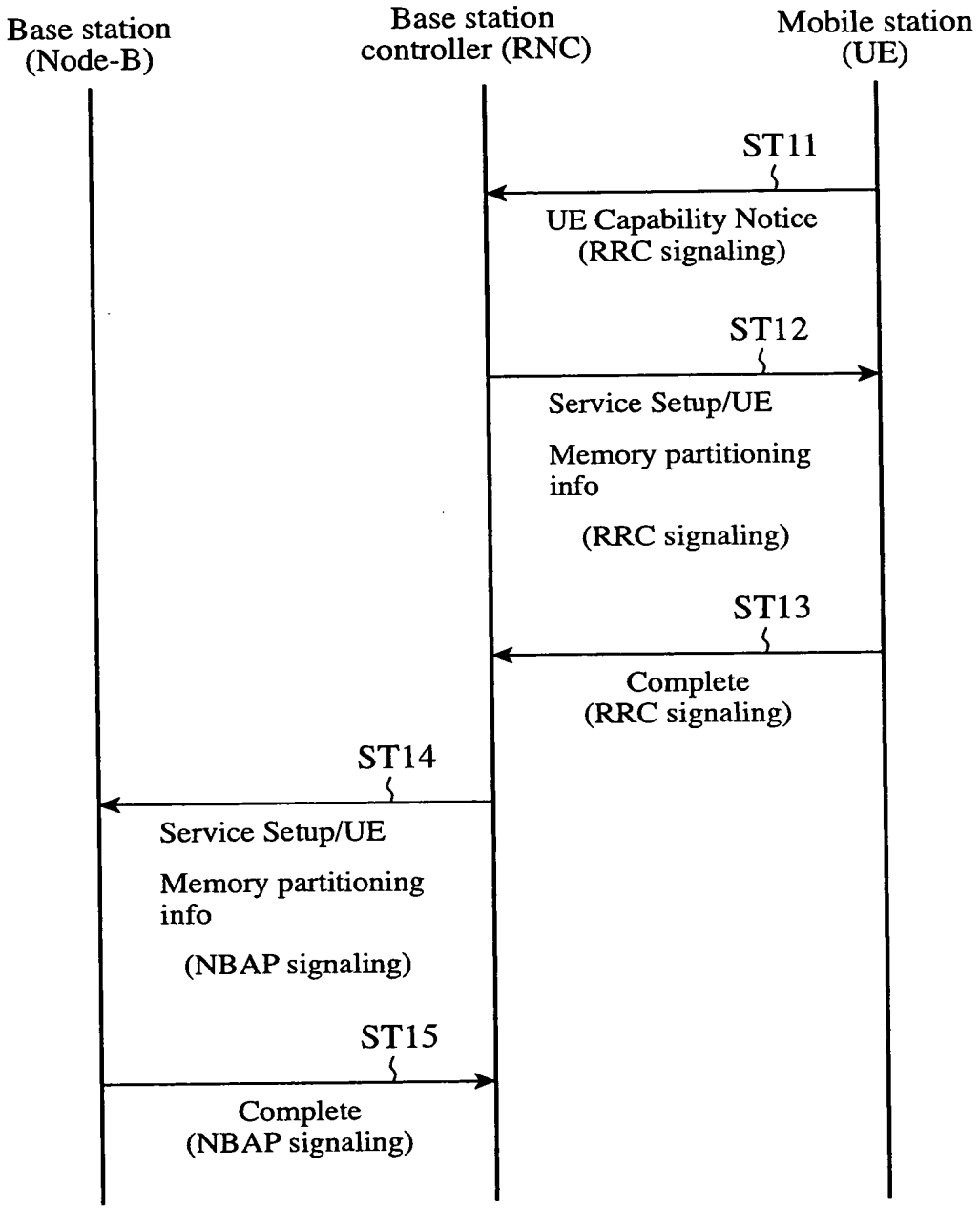

Base station (Node-B)
Base station controller (RNC)
Mobile station (UE)
ST11
UE Capability Notice (RRC signaling)
ST12
Service Setup/UE
Memory partitioning info
(RRC signaling)
ST13
Complete (RRC signaling)
ST14
Service Setup/UE
Memory partitioning info
(NBAP signaling)
ST15
Complete (NBAP signaling)

FIG.14

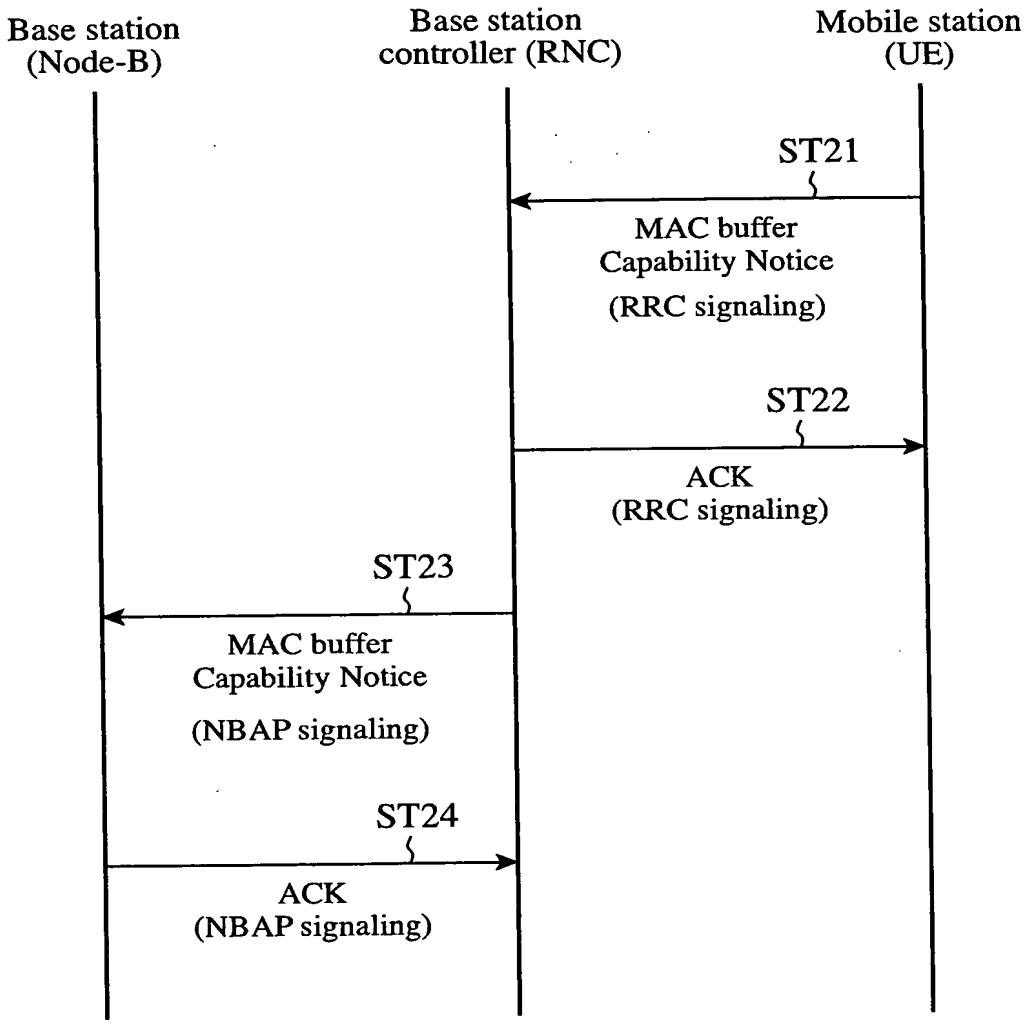

Base station (Node-B)
Base station controller (RNC)
Mobile station (UE)
ST21
MAC buffer Capability Notice
(RRC signaling)
ST22
ACK
(RRC signaling)
ST23
MAC buffer Capability Notice
(NBAP signaling)
ST24
ACK
(NBAP signaling)

FIG.15A

Index	Service 1	Service 2
1	100sec	100sec
2	100sec	80sec
3	80sec	100sec
4	80sec	80sec
⋮	⋮	⋮
10	0sec	0sec

FIG.15B

Index	DTCH1	DTCH2
1	100sec	100sec
2	100sec	80sec
3	80sec	100sec
4	80sec	80sec
⋮	⋮	⋮
10	0sec	0sec

FIG.16

Traffic class	Conversational class	Streaming class	Interactive class	Background class
Maximum bitrate(kbps)	<=16000(2)	<=16000(2)	<=16000-overhead(2)(3)	<=16000-overhead(2)(3)
Delivery order	Yes/No	Yes/No	Yes/No	Yes/No
Maximum SDU size(octets)	<=1500 or 1502(4)	<=1500 or 1502(4)	<=1500 or 1502(4)	<=1500 or 1502(4)
SDU format information	(5)	(5)		
Delivery of erroneous SDUs	Yes/No/-(6)	Yes/No/-(6)	Yes/No/-(6)	Yes/No/-(6)
Residual BER	$5*10^{-2}$,10^{-2},$5*10^{-3}$,10^{-3}, 10^{-4},10^{-5},10^{-6}	$5*10^{-2}$,10^{-2},$5*10^{-3}$,10^{-3}, 10^{-4},10^{-5},10^{-6}	$4*10^{-3}$,10^{-5},$6*10^{-8}$(7)	$4*10^{-3}$,10^{-5},$6*10^{-8}$(7)
SDU error ratio	10^{-2},$7*10^{-3}$,10^{-3},10^{-4},10^{-5}	10^{-1},10^{-2},$7*10^{-3}$,10^{-3},10^{-4},10^{-5}	10^{-3},10^{-4},10^{-6}	10^{-3},10^{-4},10^{-6}
Transfer delay(ms)	100-maximum value	280(8)-maximum value		
Guaranteed bit rate(kbps)	<=16000(2)	<=16000(2)	<=16000(2)	<=16000(2)
Traffic handling priority			1,2,3(9)	
Allocation/Retention priority	1,2,3	1,2,3	1,2,3	1,2,3
Source statistic descriptor	Speech/unknown	Speech/unknown		
Signalling Indication			Yes,No(9)	

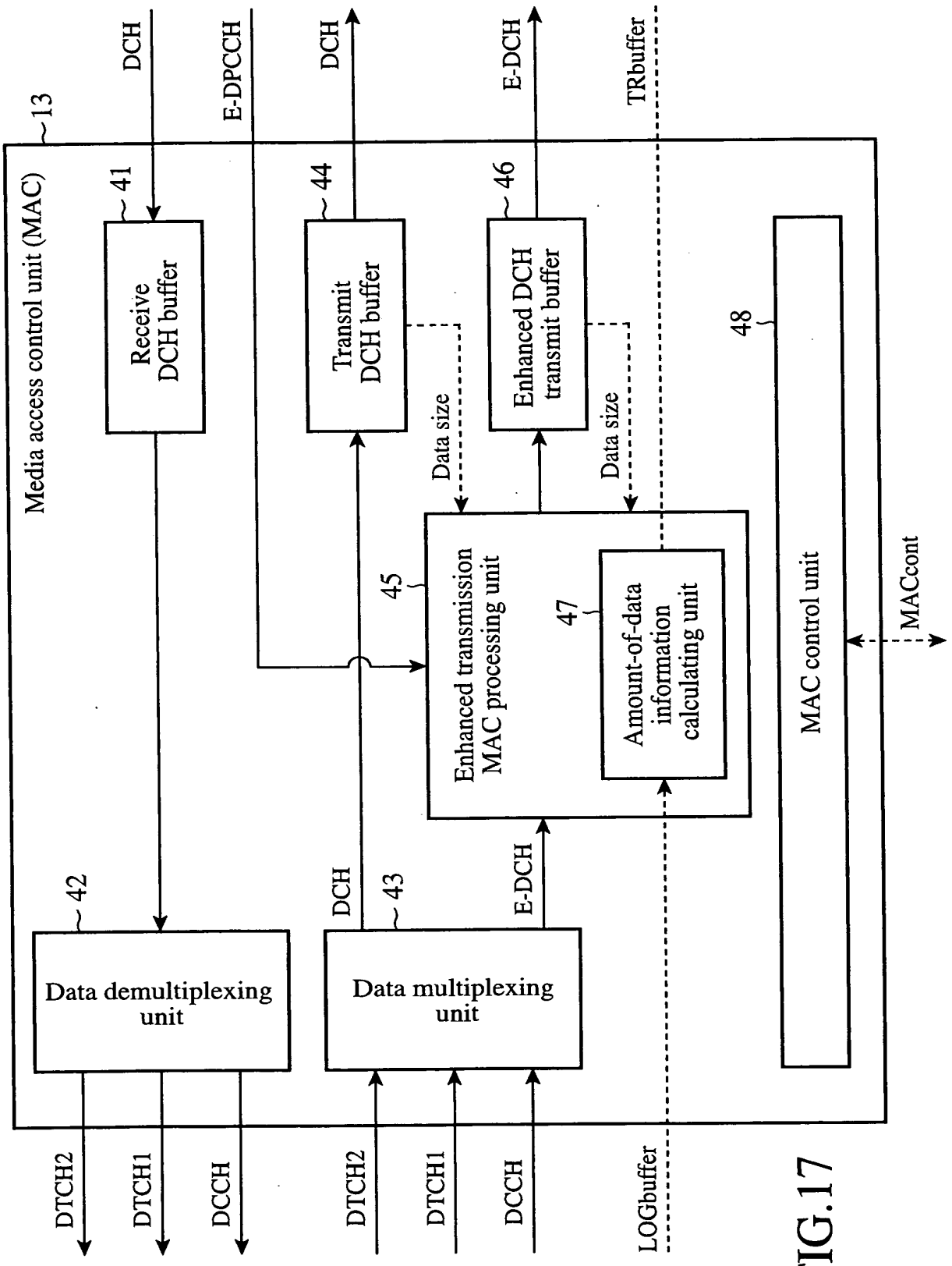

Media access control unit (MAC)
13
DCH
E-DPCCH
DCH
E-DCH
TRbuffer
41
Receive DCH buffer
44
Transmit DCH buffer
46
Enhanced DCH transmit buffer
48
Data size
Data size
45
Enhanced transmission MAC processing unit
47
Amount-of-data information calculating unit
MAC control unit
MACcont
42
Data demultiplexing unit
DCH
43
Data multiplexing unit
E-DCH
DTCH2
DTCH1
DCCH
DTCH2
DTCH1
DCCH
LOGbuffer

FIG.17

FIG.18A

Index	Service 1	Service 2
1	100TTI	100TTI
2	100TTI	80TTI
3	80TTI	100TTI
4	80TTI	80TTI
⋮	⋮	⋮
10	0TTI	0TTI

FIG.18B

Index	DTCH1	DTCH2
1	100TTI	100TTI
2	100TTI	80TTI
3	80TTI	100TTI
4	80TTI	80TTI
⋮	⋮	⋮
10	0TTI	0TTI

FIG.19A

Index	Service 1	Service 2
1	100bps	100bps
2	100bps	80bps
3	80bps	100bps
4	80bps	80bps
⋮	⋮	⋮
10	0bps	0bps

FIG.19B

Index	DTCH1	DTCH2
1	100bps	100bps
2	100bps	80bps
3	80bps	100bps
4	80bps	80bps
⋮	⋮	⋮
10	0bps	0bps

FIG.20

Traffic class	Conversational class	Streaming class	Interactive class	Background class
Maximum bitrate(kbps)	<=16000(2)	<=16000(2)	<=16000-overhead(2)(3)	<=16000-overhead(2)(3)
Delivery order	Yes/No	Yes/No	Yes/No	Yes/No
Maximum SDU size(octets)	<=1500 or 1502(4)	<=1500 or 1502(4)	<=1500 or 1502(4)	<=1500 or 1502(4)
SDU format information	(5)	(5)		
Delivery of erroneous SDUs	Yes/No/-(6)	Yes/No/-(6)	Yes/No/-(6)	Yes/No/-(6)
Residual BER	$5*10^{-2}$,10^{-2},$5*10^{-3}$,10^{-3}, 10^{-4},10^{-5},10^{-6}	$5*10^{-2}$,10^{-2},$5*10^{-3}$,10^{-3}, 10^{-4},10^{-5},10^{-6}	$4*10^{-3}$,10^{-5},$6*10^{-8}$(7)	$4*10^{-3}$,10^{-5},$6*10^{-8}$(7)
SDU error ratio	10^{-2},$7*10^{-3}$,10^{-3},10^{-4},10^{-5}	10^{-1},10^{-2},$7*10^{-3}$,10^{-3},10^{-4},10^{-5}	10^{-3},10^{-4},10^{-6}	10^{-3},10^{-4},10^{-6}
Transfer delay(ms)	100-maximum value	280(8)-maximum value	500-maximum value	2000-maximum value
Guaranteed bit rate(kbps)	<=16000(2)	<=16000(2)		
Traffic handling priority			1,2,3(9)	
Allocation/Retention priority	1,2,3	1,2,3	1,2,3	1,2,3
Source statistic descriptor	Speech/unknown	Speech/unknown		
Signalling Indication			Yes,No(9)	

FIG.21

TFR Index (TFCI)	E-DCH
11	1000
10	1000
⋮	⋮
7	100
6	80
5	20
4	20
⋮	⋮
0	0

Enhanced TFC specification values

Conventional TFC specification values

(Unit : bit/TTI)

FIG.22

TFR Index (TFCI)	E-DCH	DCH
11	1000	1000
10	1000	800
⋮	⋮	⋮
7	100	100
6	80	40
5	20	40
4	20	20
⋮	⋮	⋮
0	0	0

(Unit : bit/TTI, bit/subframe, bit/slot , etc.)

FIG.23

Gain factor Index	E-DCH (β eu)
11	30
10	30
⋮	⋮
7	20
6	10
5	5
4	5
⋮	⋮
0	0

FIG.24

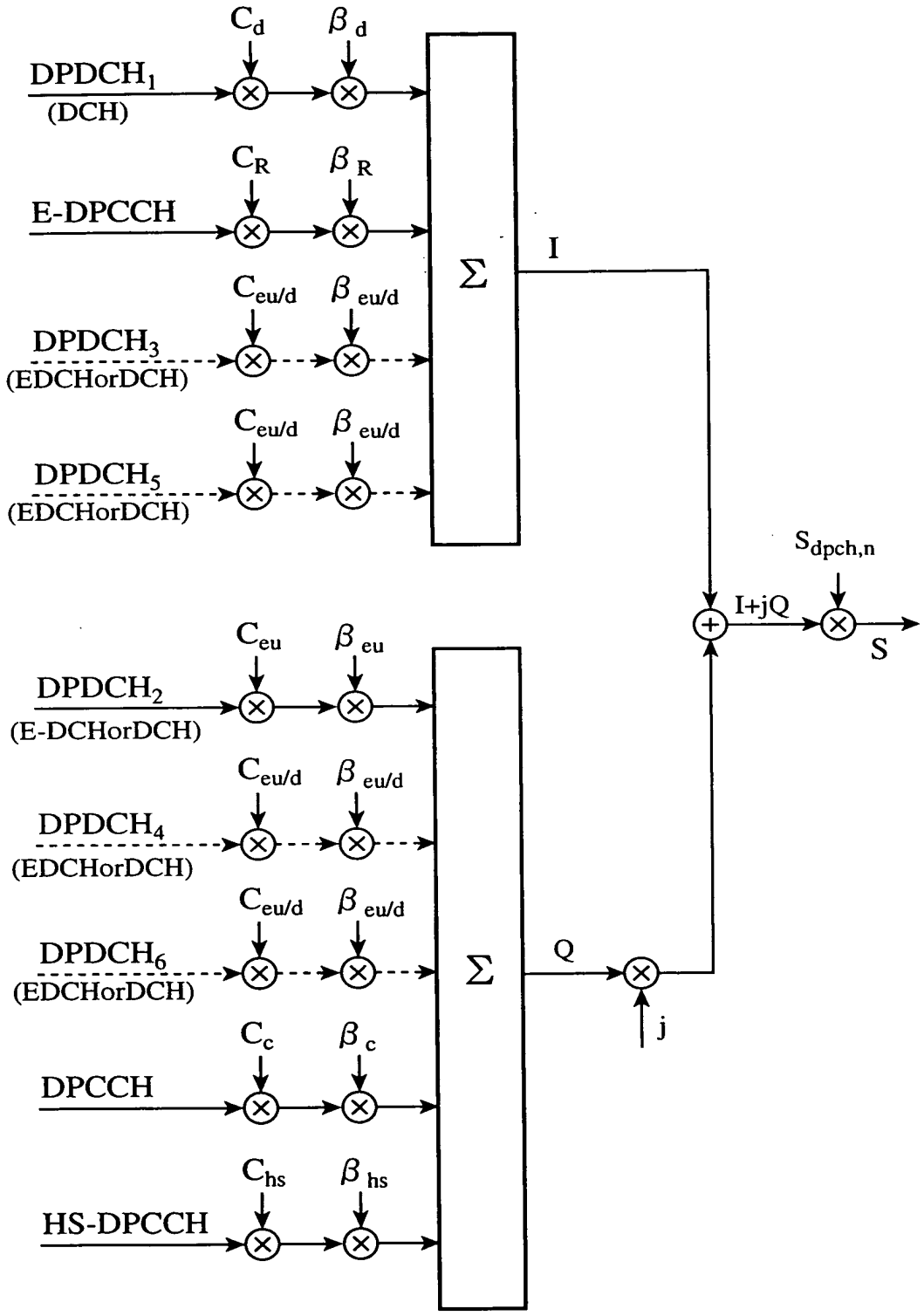

C_d
β_d
$DPDCH_1$
(DCH)
C_R
β_R
E-DPCCH
$C_{eu/d}$
$\beta_{eu/d}$
$DPDCH_3$
(EDCHorDCH)
$C_{eu/d}$
$\beta_{eu/d}$
$DPDCH_5$
(EDCHorDCH)
Σ
I
$S_{dpch,n}$
I+jQ
S
C_{eu}
β_{eu}
$DPDCH_2$
(E-DCHorDCH)
$C_{eu/d}$
$\beta_{eu/d}$
$DPDCH_4$
(EDCHorDCH)
$C_{eu/d}$
$\beta_{eu/d}$
$DPDCH_6$
(EDCHorDCH)
C_c
β_c
DPCCH
C_{hs}
β_{hs}
HS-DPCCH
Σ
Q
j

FIG.25

Gain factor Index	E-DCH (Power Offset:dB)
11	20
10	10
⋮	⋮
7	8
6	6
5	5
4	4
⋮	⋮
0	0

FIG.26A

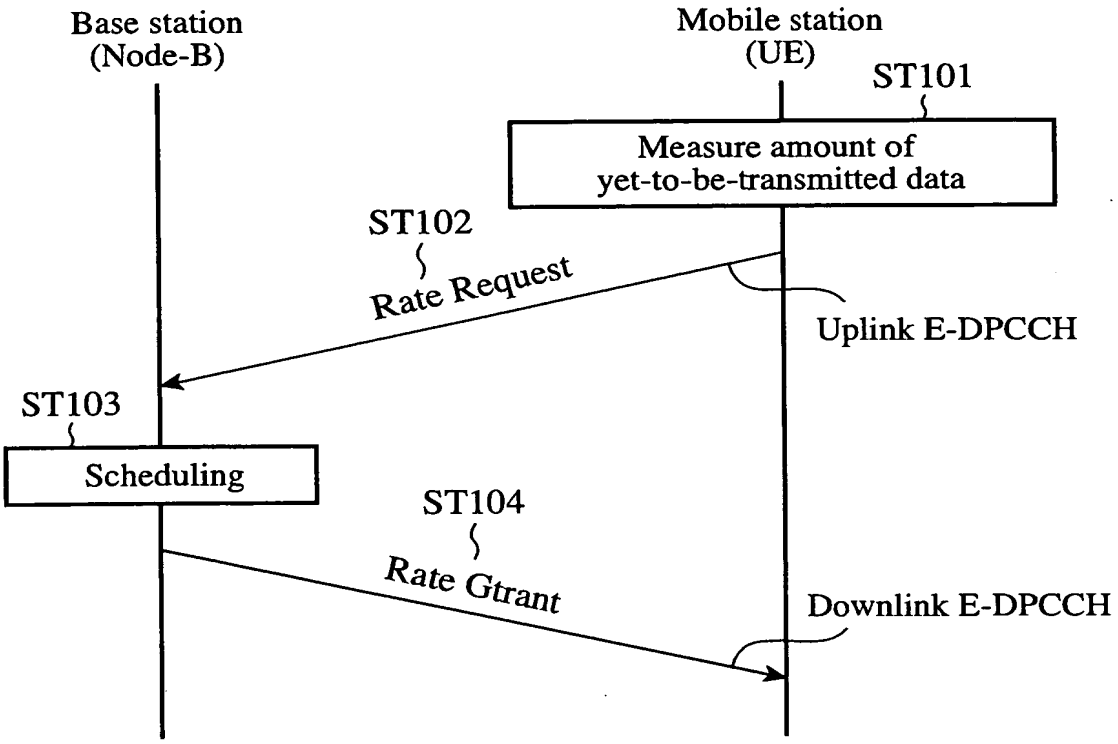


FIG.26B

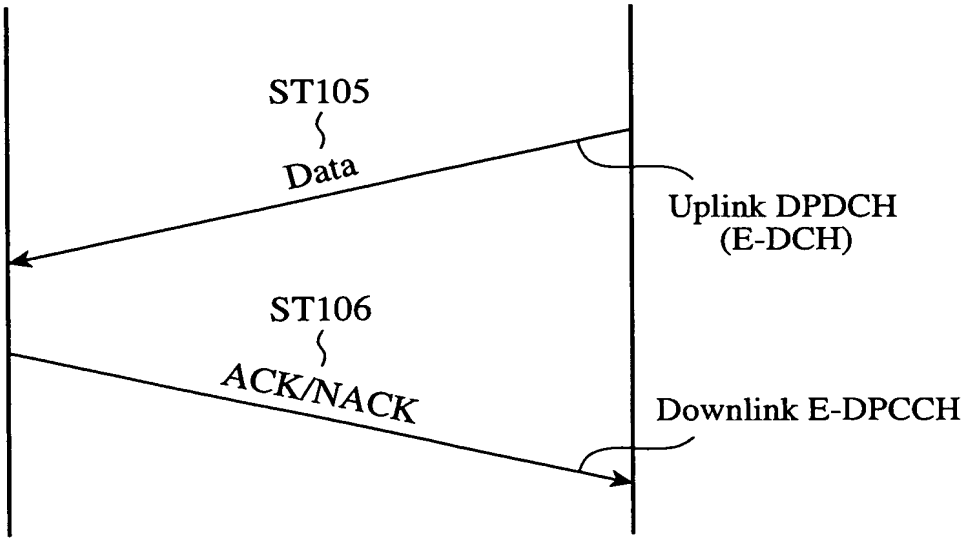


FIG.27

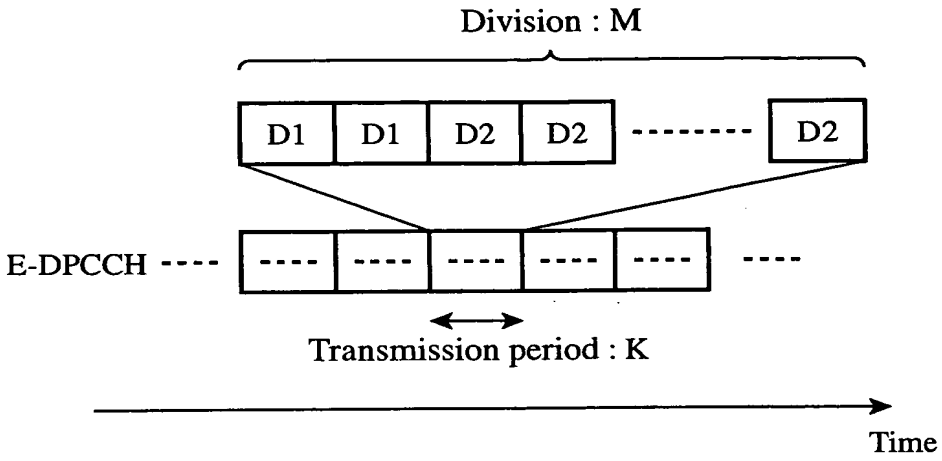
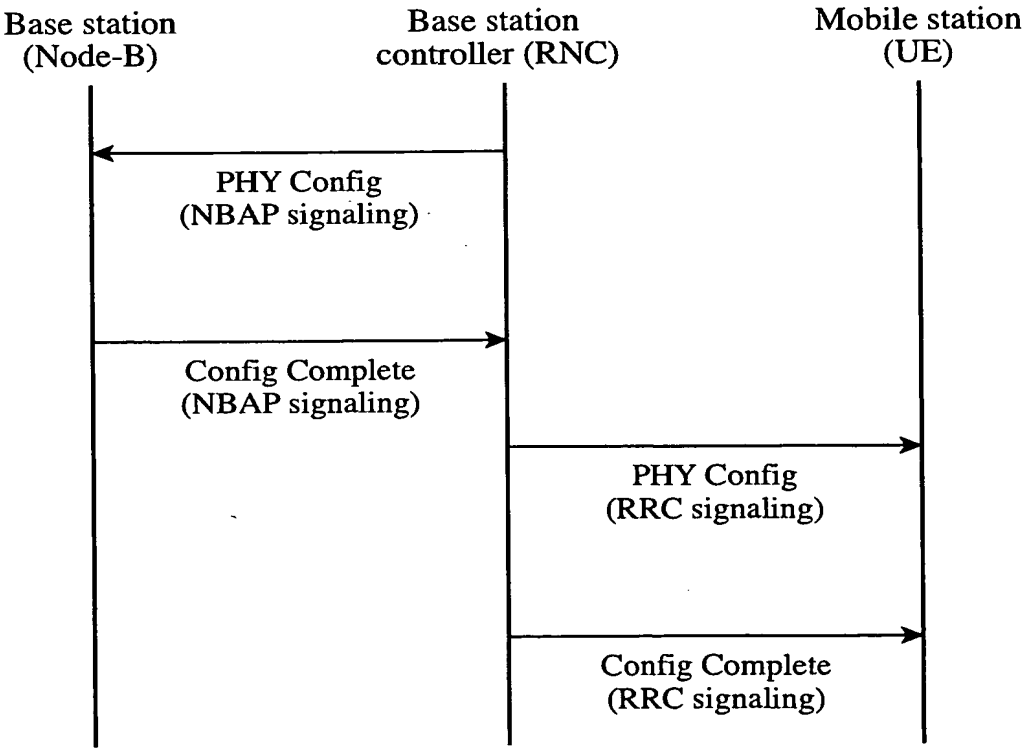

Division : M
D1
D1
D2
D2
D2
E-DPCCH
Transmission period : K
Time

FIG.28


Base station (Node-B)
Base station controller (RNC)
Mobile station (UE)
PHY Config (NBAP signaling)
Config Complete (NBAP signaling)
PHY Config (RRC signaling)
Config Complete (RRC signaling)